Instructor: Jack Petok **Time:** MWF 9:00-9:50
Office: 36 Herman Brown (Basement) **Classroom:** HBH 227
Email: petok@rice.edu **Office Hours:** TBA
Class Webpage: Look for `Math 211 S01 F17` on Canvas

Text: Farlow, Hall, McDill, West (2007). Differential Equations & Linear Algebra. Pearson.

Course Description: From the registrar: "Study of ordinary differential equations (e.g., solutions to separable and linear first-order equations and to higher-order linear equations with constant coefficients, the properties of solutions to differential equations, and numerical solution methods) and linear algebra (e.g., vector spaces and solutions to algebraic linear equations, dimension, eigenvalues, and eigenvectors of a matrix), as well as the application of linear algebra to first-order systems of differential equations and the qualitative theory of nonlinear systems and phase portraits."

This seems like a pretty accurate description of the course I'm going to teach, though I won't say very much about numerical methods. We'll roughly cover the first 8 chapters of the textbook. If I could rename the course, I'd probably choose the more accurate name "Ordinary Differential Equations with an Introduction to Linear Algebra".

Homework: The only way to *really* figure this stuff out is to work out some exercises on your own. Weekly homework will be assigned on Canvas on Monday and collected on Mondays, except when announced otherwise. You may turn in your homework by handing it in class, slipping it under my office door, or emailing a good scan or TeX version. The "official" deadline for homework is Monday at 23:59 Central Time (UTC-6). You may still be able to turn in homeworks if the "unofficial" deadline hasn't passed. The "unofficial" (but *strict* deadline is whenever I first open my office door after the "official" deadline has passed. *Absolutely no homework will be accepted after the "unofficial" deadline. Instead, your two lowest homework grades will be dropped.* The first homework is due at 23:59 on Monday, August 28.

Homework assignments are not pledged. You are encouraged to discuss these problems amongst each other, but the final write-up must be your own. Solutions to problems must be written up in a self-contained way and the write up must contain all crucial steps and not just the final answer. You are allowed to use the official textbook and notes from class, and you are allowed to use other online reference and educational sources such as Wikipedia and Paul's Online Math Notes, but not to specifically look for solutions of the homework problems. You are not allowed to ask for the solution to a particular problem on any online Q & A site or help forum. I would advise against the use of calculators and software when doing the homeworks, as these will not be allowed on the exams.

Help Sessions: The graduate student TAs of the Rice Math Department will be holding help sessions several times a week, usually in the evening. They are there to help you study class material, complete homework assignments, review before exams, and answer any other questions you may have.

Exams: There will be two midterm exams during the semester. They will take place on **Tuesday, September 26th** at 7pm and on **Tuesday, November 7th** at 7pm,. Each midterm exam is two hours long.

Final exam: The date for the final exam is not available at this time. It is the policy of the Mathematics Department that no final may be given early to accommodate student travel plans. If you make travel plans that later turn out to conflict with the scheduled exam, then it is your responsibility to either reschedule your travel plans or take a zero in the final.

Books, notes, and calculators will **not** be allowed on exams. Make-up exams will be allowed only in the case of a documented medical emergency. If an exam conflicts with a holiday you observe, please let me know before the end of the first week of classes. If you think you have a conflict with exam dates, we need to figure it out before the end of the the first week of classes!

Grades: Your homework will count as 15% of your final grade. There will also be 5% "participation." Ways to get participation points: visit me at least once in office hours, ask a question in class, basically anything more than just sitting there silently the whole time. Your attendance at lectures is also a big part of of the participation grade. The remaining portion of your grade will be the **maximum** of the following three options:

- 25% Midterm I, 25% Midterm II, 30% Final.
- 20% Midterm I, 25% Midterm II, 35% Final.
- 25% Midterm I, 20% Midterm II, 35% Final.

Expectations: I expect you to attend every class and to arrive on time. It is your responsibility to keep informed of any announcements, syllabus adjustments, or policy changes made during scheduled class time. Not all announcements will be posted on Canvas, though I will try my best.

Do not fall behind. It is completely normal to not understand the lecture or not be able to solve a homework problem on your own. Seek help whenever you need it. There are so many resources available to ensure that you are keeping up with the course. I encourage you to ask for help from your classmates, to attend working sessions with the TAs, and to come to my office hours whenever you are having trouble understanding the course material. I firmly believe that there is no such thing as a stupid question. Besides, asking questions in class and in office hours will boost your grade (see above).

Disability Support: Any student with a documented disability seeking academic adjustments or accommodations is requested to speak with me during the first two weeks of class. All such discussions will remain as confidential as possible. Students with disabilities will need to also contact Disability Support Services in the Allen Center.

Tentative Schedule:

Week 1:
Section 1.1
Section 1.2
Section 1.3

Week 2:
Section 1.5
Section 2.1
Section 2.2

Week 3:
NO CLASS 9/4 (Labor Day) Section 2.3
Section 2.4

Week 4:
Section 2.5
Section 3.1
Section 3.2

Week 5:
Section 3.3
Section 3.4
Review
Week 6:
MIDTERM 9/26
Section 3.5
Section 3.6

Week 7:
Section 3.6
Section 4.2
Section 4.3

Week 8:
NO CLASS 10/9 (Midterm Recess)
Section 4.4
Section 4.5

Week 9:
Section 4.6
Section 5.1
Section 5.2

Week 10:
Section 5.3
Section 6.1

Section 6.2

Week 11:
Section 6.3
Section 6.4
Review

Week 12:
MIDTERM 11/7
Sections 6.5, 6.6 (could be skipped for time)
Section 6.7

Week 13:
Section 2.6
Section 7.1

Week 14:
Section 7.1
Section 7.2
NO CLASS

Week 15:
Section 8.1
Section 8.2
Review